CIGRE Study Committee N° B5-41

PROPOSAL FOR CREATION OF A NEW WORKING GROUP (WG)

WG* N° B5-41	**Name of Convenor:** Harrie Lenting (NL)

Title of the Group: Investigation of possibilities to improve metering systems for billing purposes in substations.

Scope, deliverables and proposed time schedule of the Group:

Background:

Metering systems for billing purposes are normally kept separate from the control and protection systems. In many cases tariff meters and all relevant system parts are sealed and locked in order to make sure that only the settlement company has authorised access to those system parts. Regulatory bodies often apply very detailed technical requirements to the metering circuits such as; loading CT circuits with additional burdens, specifications on allowed voltage drops in VT circuits, detailed specifications of fuse type (VT circuits), accuracy of instrument transformers and meters and so on. Due to the above mentioned constraints, technology improvements for the metering system for billing purpose are very limited. At the same time, opportunities for optimization and integration of primary equipment and secondary SAS are restricted by these regulations.

Scope:

The WG shall address the following issues:

- the possibilities to implement calibration of instrument transformer curves in billing meters in order to increase the overall accuracy of the metering system or to use instrument transformers that do not have the specified accuracy and correct the inaccuracies in the tariff meters in order to make the overall metering system meet the required accuracy,
- the possibility to use VTs for metering which are available in the system, but not located at the billing point, and compensate for the voltage drop of the primary system in the tariff meter,
- requirements when non-conventional sensors are used (e.g. fibre optic CTs and VTs) for billing purposes,
- additional requirements in cases where IEC 61850 process bus is used for billing purposes,
- possible integration of metering systems in Substation Automation Systems,
- analysing differences between countries regarding:
  - technical requirements
  - procedures and regulation
  - verification practices
  - opportunities of implementing new technologies in metering systems,

Deliverables:

Full technical brochure relevant to utilities and metering settlement companies with responsibility for tariff metering or the provision of. A summary in Electra shall also be provided.

Recommendations for further developments such as:

- protocols for (billing) meter reading and transmission,
- typical architectures used for billing metering data processing and management,
- integration of multifunctional meters with quality and sequence of events registers and their use,
- optimization of CTs and VTs characteristics to meet both protection and metering requirements.

Time Schedule: start: January 2010 **Final report**: December 2012

Comments from Chairmen of SCs concerned:

Approval by Technical Committee Chairman: Klaus Fröhlich **Date**:01/04/2010